

# AMENDMENTS TO THE CLAIMS

Please **CANCEL** claims 1 – 2 and 10 - 12 without prejudice or disclaimer.

Please **AMEND** claims 3 – 9, 13, 16, and 19 as shown below.

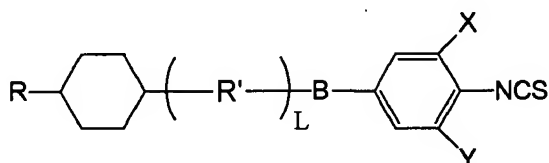
Please **ADD** claims 22 - 30 as shown below.

The following is a complete list of all claims in this application.

1-2 (Cancelled)

3. (Currently Amended) A nematic liquid crystal composition comprising a nematic liquid crystal compound represented by the following Chemical Formula 5:

Chemical Formula 5



wherein: R is  $C_nH_{2n+1}O$ ,  $C_nH_{2n+1}$ , or  $C_nH_{2n-1}$ , wherein n is an integer of 1 to 15; R' is

$\text{or}$ 

, here  $R_1$  is H or F; L is an integer of 0 to 2; B is a ~~single bond,  $\text{CH}_2\text{CH}_2$ ,  $\text{COO}$ ,  $\text{C}=\text{C}$ , or  $\text{C}\equiv\text{C}$~~ ; each of X and Y is H, F, Cl, or Br, independently or simultaneously; and at least one of X and Y is F;

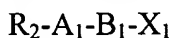
4. (Currently Amended) The nematic liquid crystal composition according to Claim 3, which comprises:

a) 1 to 80 wt% of the nematic liquid crystal compound represented by Chemical Formula

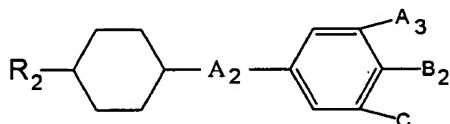
5; and

b) 20 to 99 wt% of one or more liquid crystal compounds selected from a group consisting of the compounds represented by the following Chemical Formula 2, Chemical Formula 3, and Chemical Formula 4:

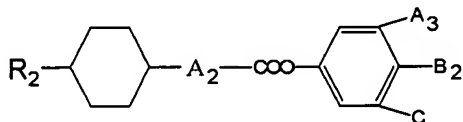
Chemical Formula 2



Chemical Formula 3



Chemical Formula 4



wherein:

each of  $R_2$  is  $C_nH_{2n+1}$  or  $C_nH_{2n}$ , independently or simultaneously, wherein  $n$  is an integer of 1 to 15,;

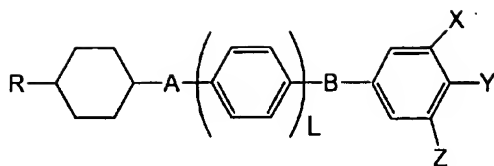
each of  $A_1$  and  $B_1$  is , , or , independently or simultaneously;

$X_1$  is F,  $CF_3$ ,  $OCF_3$ ,  $CH=CF_2$ , or  $OCH=CF_2$ ;

each of  $A_2$  is or , independently or simultaneously; and  
each of  $A_3$ ,  $B_2$ , and  $C$  is F,  $CF_3$ ,  $OCF_3$ , or H, independently or simultaneously.

5. (Currently Amended) A nematic liquid crystal composition comprising a nematic liquid crystal compound represented by the following Chemical Formula 6:

Chemical Formula 6



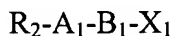
wherein: R is  $C_nH_{2n+1}O$ ,  $C_nH_{2n+1}$ ,  $C_nH_{2n+1}S_x$  or  $C_nH_{2n-1}$ , wherein n is an integer of 1 to 15; A is phenyl, phenyl-cyclohexane, cyclohexane-phenyl, or a single bond (-); L is 0 or 1; B is a single bond (-),  $CH_2CH_2$ ,  $COO$ ,  $C=C$ , or  $C\equiv C$ ; X is H, F,  $Cl_x$  or Br; Y is NCS,  $SCN_x$  or F; Z is H, F,  $Cl_x$  or Br; at least one of X and Z is F; and at least one of A and B is not a single bond.

6. (Currently Amended) The nematic liquid crystal composition according to Claim 5, which comprises:

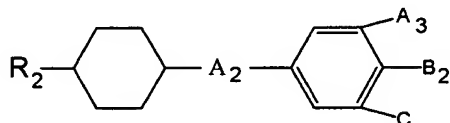
a) 1 to 80 wt% of the nematic liquid crystal compound represented by Chemical Formula 6; and

b) 20 to 99 wt% of one or more liquid crystal compounds selected from a group consisting of the compounds represented by the following Chemical Formula 2, Chemical Formula 3, and Chemical Formula 4:

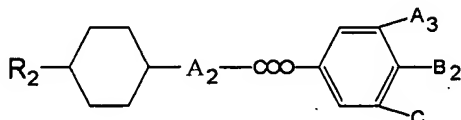
Chemical Formula 2



Chemical Formula 3

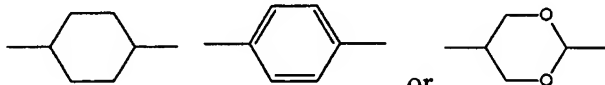


Chemical Formula 4



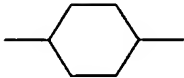
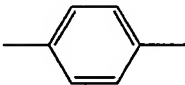
wherein:

each of  $R_2$  is  $C_nH_{2n+1}$  or  $C_nH_{2n}$ , independently or simultaneously, wherein n is an integer of 1 to 15;

each of  $A_1$  and  $B_1$  is , independently or

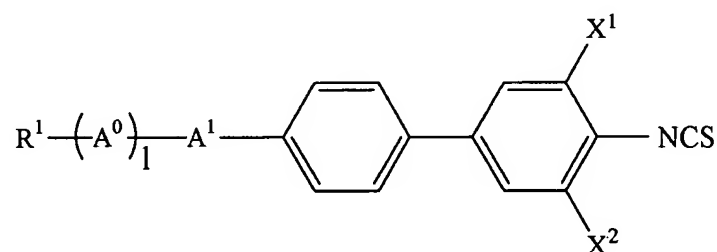
simultaneously;

$X_1$  is F,  $CF_3$ ,  $OCF_3$ ,  $CH=CF_2$  or  $OCH=CF_2$ ;

each of  $A_2$  is  or , independently or simultaneously; and  
each of  $A_3$ ,  $B_2$  and C is F,  $CF_3$ ,  $OCF_3$  or H, independently or simultaneously.


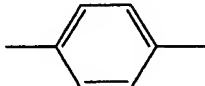
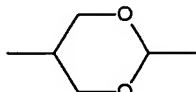
7. (Currently Amended) A nematic liquid crystal composition comprising a nematic liquid crystal compound represented by the following Chemical Formula 7:

Chemical Formula 7



wherein:

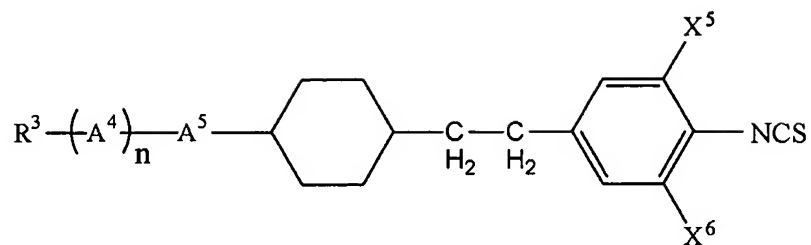
$R^1$  is a  $C_1$  to  $C_{12}$  alkyl, wherein one or two separated  $CH_2$  groups can be substituted by an oxygen atom,  $-CO-$ ,  $-OCO-$ ,  $-COO-$  or  $-C=C-$  group;

each of  $A^0$  and  $A^1$  is , , or ,  
independently or simultaneously;  
each of  $X^1$  and  $X^2$  is F, Cl,  $CN$  or NCS, independently or simultaneously; and  
 $l$  is 0 or 1.

8. (Currently Amended) The nematic liquid crystal composition according to Claim 7, which comprises:

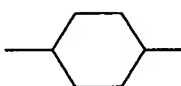
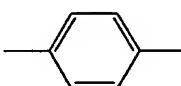
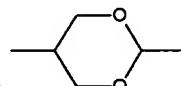
- 20 to 80 wt% of the nematic liquid crystal compound represented by Chemical Formula 7; and
- 20 to 80 wt% of a nematic liquid crystal compound represented by the following Chemical Formula 8:

Chemical Formula 8



wherein:

R<sup>3</sup> is a C<sub>1</sub> to C<sub>12</sub> alkyl; wherein one or two separated CH<sub>2</sub> groups can be substituted by an oxygen atom, -CO-, -OCO-, -COO-, or -C=C- group;

each of A<sup>4</sup> and A<sup>5</sup> is , , or , independently or simultaneously;

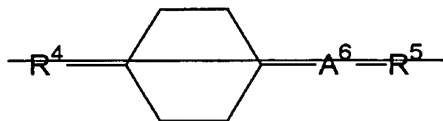
each of X<sup>5</sup> and X<sup>6</sup> is F, Cl, CN, or NCS, independently or simultaneously; and

n is 0 or 1.

9. (Currently Amended) The nematic liquid crystal composition according to Claim 7, which further comprises:

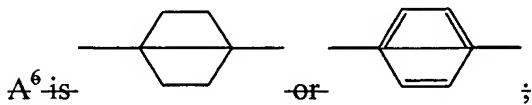
c) one or more compounds selected from a group consisting of the nematic liquid crystal compounds represented by the following ~~Formula 9~~, Chemical Formula 10, and Chemical Formula 11:

~~Chemical Formula 9~~

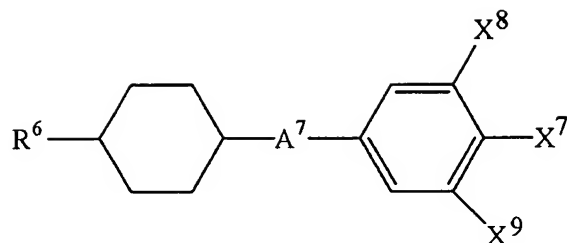


wherein:

R<sup>4</sup> is a C<sub>4</sub> to C<sub>12</sub> alkyl, and R<sup>5</sup> is a C<sub>4</sub> to C<sub>12</sub> alkyl or alkoxy; and

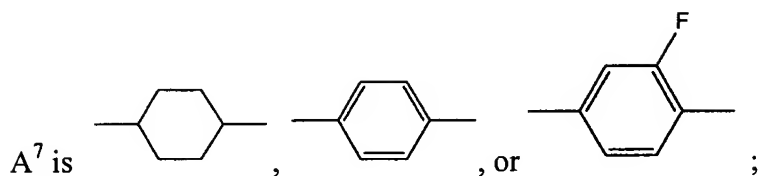


Chemical Formula 10



wherein:

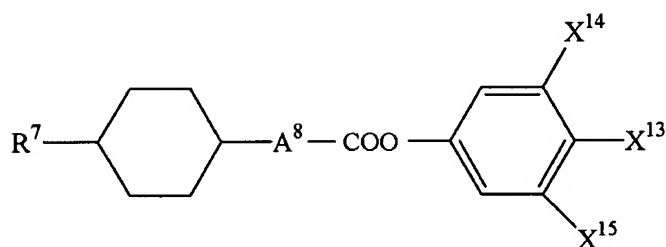
$R^6$  is a  $C_1$  to  $C_{12}$  alkyl;



$X^7$  is H, F, Cl, or  $OCH_3$ ; and

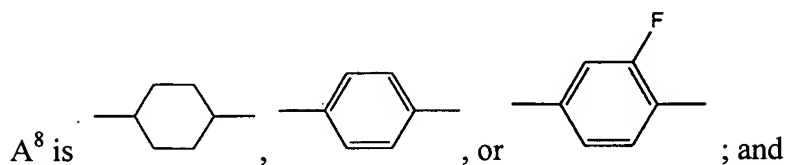
each of  $X^8$  and  $X^9$  [ $\Xi$ ] is H, F, or Cl, independently or simultaneously; and

Chemical Formula 11



wherein:

Here,  $R^7$  is a  $C_1$  to  $C_{12}$  alkyl;



each of  $X^{10}$ ,  $X^{11}$  and  $X^9$  is H, F, or Cl, independently or simultaneously.

10-12. (Cancelled)

13. (Currently Amended) A liquid crystal display comprising the nematic liquid crystal composition according to Claim 3.

14. (Original) The liquid crystal display according to Claim 13, which is an active matrix type TN (twist nematic), STN, OCB, TFT-TN mode liquid crystal display, or an IPS (in plane switching) mode or FFS (fringe field switching) mode liquid crystal display.

15. (Original) The liquid crystal display according to Claim 13, which is an AOC or COA liquid crystal display, or an OCB (optically compensated bend) mode liquid crystal display.

16. (Currently Amended) A liquid crystal display comprising the nematic liquid crystal composition according to Claim 5.

17. (Original) The liquid crystal display according to Claim 16, which is an active matrix type TN (twist nematic), STN, OCB, TFT-TN mode liquid crystal display, or an IPS (in plane switching) mode or FFS (fringe field switching) mode liquid crystal display.

18. (Original) The liquid crystal display according to Claim 16, which is an AOC or COA liquid crystal display, or an OCB (optically compensated bend) mode liquid crystal display.

19. (Currently Amended) A liquid crystal display comprising the nematic liquid crystal composition according to Claim 7.

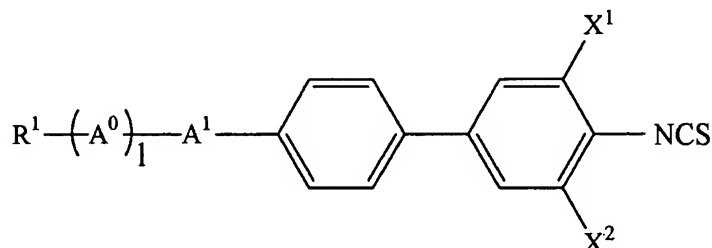
20. (Original) The liquid crystal display according to Claim 19, which is an active matrix type TN (twist nematic), STN, OCB, TFT-TN mode liquid crystal display, or an IPS (in plane switching) mode or FFS (fringe field switching) mode liquid crystal display.

21. (Original) The liquid crystal display according to Claim 19, which is an AOC or COA liquid crystal display, or an OCB (optically compensated bend) mode liquid crystal display.

22. (New) A nematic liquid crystal composition, comprising:


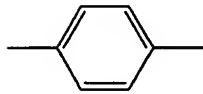
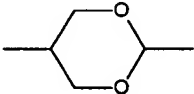
a nematic liquid crystal compound represented by the following Chemical Formula 7:

Chemical Formula 7



wherein:

$R^1$  is a  $C_1$  to  $C_{12}$  alkyl, wherein one or two separated  $CH_2$  groups can be substituted by a compound or compounds selected from the group consisting of a oxygen atom,  $-CO-$ ,  $-OCO-$ ,  $-COO-$ , and  $-C=C-$  group;

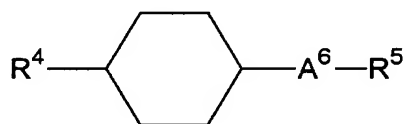
each of  $A^0$  and  $A^1$  is selected from the group consisting of , , and , independently or simultaneously;

each of  $X^1$  and  $X^2$  is F, Cl, CN, or NCS, independently or simultaneously;

$l$  is 0 or 1; and


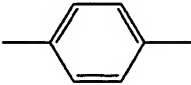
one or more compounds selected from a group consisting of the nematic liquid crystal compounds represented by the following Chemical Formula 9 :

Chemical Formula 9



wherein:

$R^4$  is a  $C_1$  to  $C_{12}$  alkyl, and  $R^5$  is a  $C_1$  to  $C_{12}$  alkyl or alkoxy; and

$A^6$  is  or .



23. (New) A liquid crystal display comprising the nematic liquid crystal composition of Claim 22.

24. (New) The liquid crystal display of Claim 23, wherein the LCD has a mode selected from the group consisting of an active matrix type TN (twist nematic), a STN, an OCB, a TFT-TN, an IPS (in plane switching) and a FFS (fringe field switching).

25. (New) The liquid crystal display of Claim 23, wherein the LCD has a mode selected from the group consisting of an AOC, COA, and an OCB (optically compensated birefringence).

26. (New) The nematic liquid crystal composition of claim 22, wherein the composition has a refractive index anisotropy in a range of about 0.07 to about 0.1.

27. (New) The nematic liquid crystal composition of claim 22, wherein the composition is in a nematic phase at a temperature in a range of about -20°C to about 80°C.

28. (New) The nematic liquid crystal composition of claim 22, wherein the composition has an electric resistance greater than about  $10^{12} \Omega\text{cm}$ .

29. (New) The nematic liquid crystal composition of claim 22, wherein the composition has a threshold voltage in a range of about 1.5 to about 2.0 V which is defined by the following equation

$$V_{th} = \pi \sqrt{\frac{K}{\epsilon_0 \Delta\epsilon}}$$

wherein  $V_{th}$  is the threshold voltage,  $\Delta\epsilon$  is the dielectric anisotropy, and  $K$  is the modulus of elasticity.

30. (New) The liquid crystal display of claim 23, wherein the LCD has a response time less than about 10 ms.